UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,269	04/18/2006	Yuzuru Sugano	Q94086	3633

23373 7590 10/13/2009

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
BOYLE, ROBERT C	

ART UNIT	PAPER NUMBER
1796	

MAIL DATE	DELIVERY MODE
10/13/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/576,269	SUGANO ET AL.	
	Examiner	Art Unit	
	ROBERT C. BOYLE	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *7/17/2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 7-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 7-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The examiner assigned to the current application has been changed. The new examiner's name and contact information are stated at the end of this action. Applicant is requested to take note of the change.

Response to Amendment

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Any rejections stated in the previous Office Action and not repeated below are withdrawn. In particular, the obviousness rejections in view of Ahn (US 2004/0009614) are withdrawn due to the amendments of claim 1.

4. The new grounds of rejection set forth below are necessitated by applicant's amendment filed on July 17, 2009. In particular, claim 1 has been amended to include the limitations of claims 3, 4, and 6 and the limitation of the lower limit of the particle size has been incorporated from the specification. This presents the claims in a manner with a scope not previously examined. Thus, the following action is properly made FINAL.

Claim Rejections - 35 USC § 103

5. Claims 1, 7-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Watkins** (US 6,280,618).

6. As to claim 1, Watkins teaches magnetic particles (abstract) where a magnetic material is dispersed throughout a polymer (col. 4, lines 39-65), a suitable polymer is a polyolefin (col 5, lines 10-17) where the polymer has functional groups, including amino, carboxylic, and hydroxyl

groups (col. 5, lines 18-27), and the particle size ranges from 0.3-100 μm (col. 5, lines 54-60). Watkins teaches magnetic particles with a density of 1.097 g/cc in a bead shape (col. 14, lines 24-31). Watkins does not teach the magnetic particles are substantially spherical.

7. However, it would have been obvious to one of ordinary skill in the art that the particles of Watkins were spherical because Watkins teaches the particles are in a bead shape (col. 14, lines 24-31) and beads are generally spherical.

8. As to claim 7, page 9 of the instant specification defines a 'soft magnetic material' to include maghemite and Watkins teaches using maghemite in the magnetic particles (col. 12, lines 10-28).

9. As to claim 8, page 8 of the instant specification defines superparamagnetic material as that which is formed by making a ferromagnetic material at nano-order size. Watkins teaches a range of particle size from 0.3-100 μm (col. 5, lines 54-60) and only nano-order sized ferromagnetic material could be encompassed by a particle at the low end of the particle size range. Therefore, that the magnetic material is superparamagnetic is an inherent property of the particles.

10. As to claim 10, Watkins teaches the magnetic material is present in the particles in 5-15 wt% (col. 4, lines 39-65).

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Watkins** (US 6,280,618) in view of **Yamamoto** (EP 0394020). The discussion with respect to Watkins as set forth in paragraphs 5-10 above is incorporated here by reference.

12. Watkins teaches magnetic particles (abstract) where a magnetic material is dispersed throughout a polymer (col. 4, lines 39-65), a suitable polymer is a polyolefin (col 5, lines 10-17) where the polymer has functional groups, including amino, carboxylic, and hydroxyl groups (col. 5, lines 18-27), and the particle size ranges from 0.3-100 μm (col. 5, lines 54-60). Watkins teaches magnetic particles with a density of 1.097 g/cc in a bead shape (col. 14, lines 24-31). Watkins does not teach using manganese-zinc ferrite or nickel-zinc ferrite.

13. Yamamoto teaches using nickel-zinc ferrite or manganese-zinc ferrite as the core magnetic material of magnetic particles (abstract; page 2, lines 1-30). It would have been obvious to use the magnetic material of Yamamoto in the particles of Watkins because the Mn-Zn ferrite and Ni-Zn ferrite have a large magnetic permeability giving a higher capacity (page 2, lines 14-30).

14. Claims 1-2, 7-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chatterjee** et al., *Polyethylene magnetic nanoparticle: a new magnetic material for biomedical applications*, Journal of Magneticsm and Magnetic Materials, 246 (2002) pp 382-391 in view of **Watkins** (US 6,280,618).

15. As to claims 1-2, Chatterjee teaches making magnetic particles by coating a magnetic substance with polyethylene where the particle size is 50-500 nm and the particles are spherical (abstract; pages 383-384). Chatterjee does not teach the density of the particles or that the particles are functionalized.

16. Watkins teaches magnetic particles (abstract) where a magnetic material is dispersed throughout a polymer (col. 4, lines 39-65), a suitable polymer is a polyolefin (col 5, lines 10-17)

where the polymer has functional groups, including amino, carboxylic, and hydroxyl groups (col. 5, lines 18-27), and the particle size ranges from 0.3-100 μm (col. 5, lines 54-60). Watkins teaches magnetic particles with a density of 1.097 g/cc in a bead shape (col. 14, lines 24-31).

17. It would have been obvious to functionalize the polyethylene because both Chatterjee and Watkins teach magnetic particles coated with polyolefins used for biomedical applications and Chatterjee teaches coupling a protein with the particles (page 383) and Watkins teaches that the assay reagent can be incorporated into the polymer structure by use of functional groups on the polymer (col. 5, lines 18-27) and covalent bonding is preferred and linking groups can increase the density of reactive groups on the surface to increase the range and sensitivity of the assay (col. 5, lines 28-32).

18. As to claim 7, page 9 of the instant specification defines a 'soft magnetic material' to include maghemite and Chatterjee teaches using maghemite (page 383).

19. As to claim 8, Chatterjee teaches the particles are superparamagnetic (page 389).

20. As to claim 10, Watkins teaches the magnetic material is present in the particles in 5-15 wt% (col. 4, lines 39-65).

21. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Chatterjee** et al., *Polyethylene magnetic nanoparticle: a new magnetic material for biomedical applications*, Journal of Magneticsm and Magnetic Materials, 246 (2002) pp 382-391 and **Watkins** (US 6,280,618) in view of **Yamamoto** (EP 0394020). The discussion with respect to Watkins and Chatterjee as set forth in paragraphs 14-20 above is incorporated here by reference.

As to claim 9, Chatterjee teaches making magnetic particles by coating a magnetic substance with polyethylene where the particle size is 50-500 nm and the particles are spherical (abstract; pages 383-384). Watkins teaches magnetic particles (abstract) where a magnetic material is dispersed throughout a polymer (col. 4, lines 39-65), a suitable polymer is a polyolefin (col 5, lines 10-17) where the polymer has functional groups, including amino, carboxylic, and hydroxyl groups (col. 5, lines 18-27), and the particle size ranges from 0.3-100 μm (col. 5, lines 54-60). Watkins teaches magnetic particles with a density of 1.097 g/cc in a bead shape (col. 14, lines 24-31). Chatterjee and Watkins do not teach using manganese-zinc ferrite or nickel-zinc ferrite.

22. Yamamoto teaches using nickel-zinc ferrite or manganese-zinc ferrite as the core magnetic material of magnetic particles (abstract; page 2, lines 1-30). It would have been obvious to use the magnetic material of Yamamoto in the particles of Watkins because the Mn-Zn ferrite and Ni-Zn ferrite have a large magnetic permeability giving a higher capacity (page 2, lines 14-30).

Response to Arguments

23. Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

24. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT C. BOYLE whose telephone number is (571)270-7347. The examiner can normally be reached on Monday-Thursday, 9:00AM-5:00PM Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ROBERT C BOYLE/
Examiner, Art Unit 1796

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796